

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/048361 A2

(51) International Patent Classification⁷: **H01L 33/00**

Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). MAT-SUI, Shinji [JP/JP]; 5-23-2, Tsujii 7-chome, Himeji-shi, Hyogo 6700083 (JP).

(21) International Application Number:
PCT/JP2004/017121

(74) Agents: KOTANI, Etsuji et al.; Nichimen Building 2nd Floor, 2-2, Nakanoshima 2-chome, Kita-ku, Osaka-shi, Osaka 5300005 (JP).

(22) International Filing Date:
11 November 2004 (11.11.2004)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-383064 12 November 2003 (12.11.2003) JP

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): MAT-SUSHITA ELECTRIC WORKS, LTD. [JP/JP]; 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP).

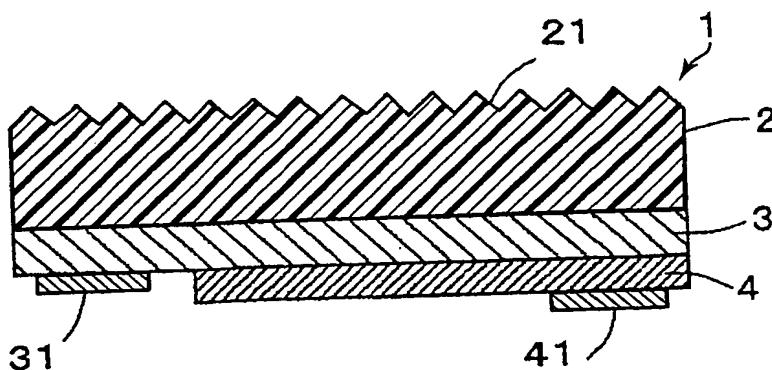
Published:

— without international search report and to be republished upon receipt of that report

(72) Inventors; and
(75) Inventors/Applicants (for US only): FUKUSHIMA, Hiroshi [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). KUBO, Masao [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). INOUE, Akira [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). TANAKA, Kenichiro [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP). MASUI, Mikio [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048,

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A METHOD FOR PRODUCING A LIGHT-EMITTING DEVICE



WO 2005/048361 A2

layer 5, and a step of forming a minute unevenness structure 21, 34 for preventing multiple reflection based on the minute unevenness structure 51 transferred to the transfer layer 5.

(57) Abstract: A production method for producing a light-emitting device 1 in which a light-emitting layer at least comprised of a n-type substrate bearing layer 3 and a p-type substrate bearing layer 4 is layered on a transparent crystal substrate 2 is provided with a step of forming a transfer layer 5 on at least a part of the transparent crystal substrate 2 or the light-emitting layer 3, 4; which transfer layer 5 is softened or set upon supplying an energy thereto; a step of pressing a mold 6 formed with a minute unevenness structure 61 against the transfer layer 5 to transfer the minute unevenness structure 61 to an outer surface of the transfer